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the pace of the race is gaining, but the goal is not and never will be in sight.

Since the time of Newton our knowledge of the phenomena of nature has wonderfully increased, but man asks, perhaps more earnestly now than in his days, What is the ultimate reality behind the reality of the perceptions? Are they only the pebbles of the beach with which we have been playing? Does not the ocean of ultimate reality and truth lie beyond?

METEOROLOGICAL NOTES.

FOR many years the United States government has assiduously gathered up the meteorological conditions from many stations scattered far and wide over the surface of our great continent, and having collated the facts sent in to the central office, has deduced therefrom certain forecasts known as probabilities. These forecasts are made out twice per day, and then telegraphed broadcast over the country, to be disseminated among the people as widely as possible for the benefit of their commerce, their agriculture, their shipping, and even their lives. For many years I have been on the "volunteer" roster of the United States Weather Service, and as such have been the recipient of weather telegrams once per day. For several years I went to the trouble and expense to supply the usual flags, and faithfully made the proper display of them (at Fayette, Mo.).

In 1889 I saw in the St. Louis *Republic* a brief notice of a "whistle code" in use at Seymour, Ind., and I determined to introduce the whistle in place of the flags, and for the following considerations: (1) The flags could not be seen to any advantage beyond one mile; (2) in foggy weather or during snow-storms the flags could not be seen at all; (3) the whistle could be heard in any kind of weather and to distances reaching from six to eight miles in all directions, and by using a more powerful whistle the distance could be made greater still.

Accordingly I sent to Indiana and obtained the code in vogue there. It was a combination of short and long blasts, the "shorts" sometimes preceding and in other cases following the "longs." I concluded it would be more systematic to have the longs refer to the weather and come first, and the shorts refer to temperature and come last. The chief advantage in having shorts come last was that any one hearing a prolonged blast of the whistle might be sure that no short ones had preceded and been lost. I therefore adopted the following plan. Shorts refer to the temperature, one short meaning colder (the column in the thermometer gets shorter with cold), and two shorts meaning warmer. Longs refer to the weather, one long meaning fair (clear, or cloudy without precipitation), two longs meaning rain or snow. This much being decided upon, it is easy to blow "fair and warmer," or "snow and colder," or "fair and warmer followed by rain," — in the last the shorts come in the middle to separate the one long (fair) and the two long (rain), — or any other combination necessary. For the announcement of cold waves, three longs; and for frosts in the frosty seasons or for severe storms in summer, four longs, were used at Seymour, Ind., and the same were adopted in my code. In September, 1889, the first signal was blown, being preceded by four short blasts as a warning that the "weather" was about to be blown. From that date to this the people for miles around have been daily warned of the probabilities for the succeeding twenty-four hours, and they have shown much interest in the matter, being willing to put up at the mill, if necessary, a more powerful whistle than the one now employed.

One of our merchants had the code printed on his advertising cards, and they may be seen tacked up in stores or homes, or in the hands of citizens near and far. Many people soon commit the code to memory and have no need for the key. Persons have reported hearing the whistle at the distance of ten miles; but, as a rule, it is not regularly heard beyond five or six miles.

During the summer of 1890 I tried to get some of our railroads to adopt the code, and whistle the weather at intervals of five or six miles as the trains sped through the country. One road replied that they had too much whistling to do already, there were so many crossings along the way. But I still do not see why the weather whistle could not be used instead of the customary two longs and two shorts usually blown at crossings.

In the chief signal officer's report for 1890, p. 235, I am credited with the introduction of the whistle code now in use in many places in the State. In recent circulars sent out by Chief Harrington, I see that the code has been still further modified, the three longs being used to indicate "local rains," and three shorts meaning a "cold wave." As a cold wave comes rather under the head of temperature, it is doubtless more appropriate to include it among the shorts.

I have written thus at length about the whistle code because I think it should be widely introduced, entailing no expense for flags to be whipped out by the wind, and reaching more people than flags can. Moreover, by having the dispatch blown at the same hour every day, it becomes a time signal by which the people can set their clocks and watches. The noon hour is a good one where the morning forecasts can be delivered before twelve o'clock.

For several years, by the courtesy of the government, I was permitted to use a set of maximum and minimum thermometers. But they entailed the necessity of observation and adjustment every day, and this duty bound the observer to be at home or to intrust the instruments to other hands, or to break the continuity of his record. So last May one year ago I purchased a Draper self-recording thermometer, regulated it by comparisons with the standard instruments for several weeks, and then gave up these standard instruments.

For twelve months I replaced the charts week by week, and filed away the "red-lined" ones, with dates, etc., properly filled in the blanks therefor. On the first of July of this year (1891) I began to put those charts through again, using purple ink instead of red in the pen. Comparison of temperatures for 1890 and 1891, day by day, hour by hour, is both easy and interesting. I think I shall change the ink to green, or some other color, and use again another year. It is certainly a great comfort to wind up the clock, put in another chart, refill the pen, once per week (say Monday morning), and then go about one's business or on a journey, perhaps, and to know that there is to be no break in the record though away for days at a time. I would not like to go back to the old method again.

T. BERRY SMITH.

NOTES AND NEWS.

THE Brooklyn Institute announces a series of "Institute Extension Courses," consisting of lectures on astronomy, by Mr. Garrett P. Serviss, president of the department of astronomy. The first course will be on the solar system, embracing "The Sun, Its Distance, Size, Motions, and Gravity;" "The Sun, Its Nature

and Constitution;" "The Earth as a Planet;" "Mercury, Venus, and Mars;" "Jupiter, Saturn, Uranus, and Neptune;" "The Satellites of the Planets;" and "Asteroids, Meteors, and Comets." The second of the series will deal with the stellar systems, and will consist of "The Geography of the Heavens;" "The Relation of the Solar System to Surrounding Space;" "The Stars, their Magnitudes, Distances, and Motions;" "The Stars, their Spectra and Constitution: Variable and Multiple Stars;" "Nebulæ and the Evolution of Stars;" and "The Constitution of the Universe." The third or advanced course will include "General Laws that Govern the Universe;" "Gravitation and the Perturbations of Planets;" "Light and its Analysis, — How Used as a Means of Investigation;" "Astronomical Photography;" "Electric and Magnetic Forces and their Application in Astronomy;" and "The Measurement of Time." The series will conclude with a course of three single lectures, on "The History of Astronomy;" "The Great Astronomers;" and "Recent Progress in Astronomical Research." Each of these lectures will be illustrated by lantern photographs. The courses are subject to alteration to meet special requirements. The institute will conduct these courses of lectures on the so-called "university extension" plan, under the title of "Institute Extension Lectures." Each lecture will be preceded by a conference on the subject of the previous lecture. A syllabus of each course of lectures, together with directions for reading and study, will be provided. Those who desire may present themselves for examination at the close of a course, by giving ten days' notice. Certificates will be issued by the institute to those who pass a satisfactory examination.

— According to *Nature*, an interesting experiment has been lately made by M. Chabry of the Société de Biologie, with regard to the pressure which can be produced by electrolytic generation of gas in a closed space. While the highest pressure before realized in this way was 447 atmospheres (Gassiot), M. Chabry has succeeded in getting as high as 1,200; and the experiment was broken off merely because the manometer used got cracked (without explosion). The electrolyzed liquid was a twenty-five per cent soda solution. Both electrodes were of iron: one was the hollow sphere in which the gas was collected, the other an inner concentric tube. The current had a strength of one and a half ampères, and was very constant during the experiment, which was merely one preliminary to a research in which very high pressures were desired.

— During the coming winter and spring a course of lectures, under the auspices of the New York Academy of Sciences, will be delivered in Hamilton Hall, Madison Avenue and 49th Street, this city. The lectures will be as follows: Oct. 26, Paraguay, the Land and the People, by Dr. Thomas Morong; Nov. 16, Woman's Part in the Earlier Civilizations, by Professor Otis T. Mason; Dec. 21, Mountains, their Origin and History, by Professor H. L. Fairchild; Jan. 18, The Lochs and Crannogs of Scotland, by Professor Franklin W. Hooper; Feb. 15, Street Scenes in Cairo and Glimpses of the Nile, by Professor H. Carrington Bolton; March 21, Contributions of Organic Chemistry to Modern Medicine, by Professor Arthur H. Elliott; April 18, Elves of the Air, by Dr. A. A. Julien; May 16, Color, by Professor Ogden N. Rood.

— At the twenty-fourth annual meeting of the Kansas Academy of Science, held at Ottawa, Oct. 14, 15, and 16, the following papers were read. "The Evolution of the Human Face," by A. H. Thompson; "Experiments made in 1891 on the Dissemination of the Chinch-Bug Diseases," F. H. Snow; "A New Erythronium (*E. mesochorum*)," by E. B. Knerr; "An Inexpensive Reagent Bottle for Use in Microscopic Work," by E. B. Knerr; "A Partial List of the Plants of Franklin County," by W. E. Castle; "Geographical Distribution of Common Western Plants" and "List of Rocky Mountain Plants collected in 1889," by M. A. Carlton; "On Solanum Rostratum," by L. E Sayre and W. S. Amos; "Is the Rainfall in Kansas increasing?" and "Seven-year Periodicity in Rainfall," by E. C. Murphy; "A Simple Method for the Determination of Equivalent Weights of Metals, as Compared with Hydrogen," E. B. Knerr; "Have Meteorites Magnetic Polarity?" by L. I. Blake; "A Revised List of Kansas Minerals," by G. H. Failyer and E. H. S. Bailey; "The Effect of Scientific Studies upon the Imagination," by Olin Templin; "Restoration of Pteranodon," by S. W. Williston; "Notes on Some New Kansas Cephalopods," by Robert Hay; "Some Statistics Relative to the Health of College Women," by Gertrude Crotty; "List of Diptera, Collected by F. H. Snow at Manitou Park, Col., August, 1891," by F. H. Snow and W. A. Snow; "New Western Diptera," by W. A. Snow; "Characteristic Flora" (second paper), "Some Prairie Plants of Eastern Colorado," and "Variations in Dominant Species of Plants," by M. A. Carlton;" "Doniphan Lake, formation of, in 1891," by E. B. Knerr; "Contributions to a List of Kansas Hymenoptera," by E. A. Popenoe; "On the Therapeutic Value of Some Recently Introduced Chemicals," by L. E. Sayre; "An Astronomical Lantern," by E. B. Knerr; "On the Corrosive Action of Fruit Juices on Tin Cans," by E. H. S. Bailey and E. C. Franklin; "Selective Absorption in Leaves," by A. G. Mayer; "Probable Temperature of Summer at Lawrence, Kan.," by E. C. Murphy; "Nesting of the Pied-billed Grebe" and "Two Rare Birds of Kansas, the White-faced Glossy Ibis, and Clark's Nutcracker," by A. M. Collett.

— The correspondent of the London *Times* at Alexandria, Egypt, states that three colossal statues, ten feet high, of rose granite, have just been found at Aboukir, a few feet below the surface. The discovery was made from indications furnished to the government by a local investigator, Daninos Pasha. The first two represent in one group Rameses II. and Queen Hentmara seated on the same throne. This is unique among Egyptian statues. The third statue represents Rameses standing upright in military attire, a sceptre in his hand and a crown upon his head. Both bear hieroglyphic inscriptions, and both have been thrown from their pedestals face downwards. Their site is on the ancient Cape Zephyrium, near the remains of the Temple of Venus at Arsinoe. Relics of the early Christians have been found in the same locality.

— The marine laboratory of biology and zoology, which is to be instituted at Bergen next year, *Nature* states, will be open to any foreign investigators who may desire to study the marine fauna of that part of Scandinavia.

— Professor N. S. Shaler has been appointed Dean of the Lawrence Scientific School of Harvard University, from which position Professor Chapin recently resigned to accept the directorship of Washington University, St. Louis, Mo.

— Professor Traill Green, M.D., LL.D., dean of the Pardee scientific department, and head of the chemical department of Lafayette College, at Easton, Pa., has retired from active service in the institution owing to advanced years. He has been made professor emeritus of the chemical department.

— Among other articles in the November *Magazine of American History* are "One Hundred Years of National Life; the Contrast between 1789 and 1889," by Dr. Patton; "Introduction of the Negro into the United States," by Rev. Dr. Stakely; and "The Historic Games of Old Canada," by Dr. Prosper Bender.

— Of the "Creole Studies," by Professor Hugo Schuchardt of Gratz in Styria, the latest issue is the ninth in the series, and deals with the Malayo-Portuguese medley language of Batavia and Tugu, on the island of Java. His serial is published in the octavo memoirs of the Imperial Academy of Sciences, Vienna, and in view of the rising interest paid to the studies of foreign languages, has attracted a good deal of attention. Among the medley languages, Schuchardt has taken up those that originated from the mixture of Romanic languages with those of the negroes, Malays, and other inhabitants of the African, Asiatic, and American coasts. In this line we mention his studies on the Negro-Portuguese of Annabom (West Africa), on the Annamito-French dialect, on the Indo-Portuguese of Mahé and Cannanore, and of other similar dialects of southern India, and on the Negro-Portuguese of Ilha do Principe (Gulf of Guinea). The ninth pamphlet of the series is, like the others, richly illustrated with vocabularies, popular songs, and other texts; the translation being added on the same page, we are enabled to judge more thoroughly upon the degree of mixture that has taken place between the European tongues and the native dialects.